ON A SMALL COLLECTION OF FISH FROM THE BHAVANI RIVER (S. INDIA).

BY

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(*With three text-figures.*)

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This note is based on a small collection made by Lt.-Col. R. W. Burton in the Bhavani River in the Coimbatore district, South India. The specimens were sent to Dr. S. L. Hora by the Curator of the Bombay Natural History Society. I am indebted to Dr. Hora for kindly placing the material in my hands for study. My best thanks are due to Lt.-Col. R. B. Seymour Sewell, Director of the Zoological Survey of India, for his kindness in going through the manuscript.

The collection comprises ten specimens only, which represent nine different species. In view of the fact that some of the species contained in the collection are hitherto known only from short and inadequate descriptions, opportunity is hereby taken to supply such additional or emended descriptions as are necessary for convenience of future reference from the present well-preserved specimens. The local Telugu names for the species are quoted from a list accompanying the collection.

Callichrous bimaculatus (Bloch).

1794. *Silurus bimaculatus*, Bloch, *Nat. Ausl. Fische*, VIII, p. 24.
1877. *Callichrous bimaculatus*, Day, *Fish. India*, p. 476, pl. cx. figs. 4 & 5.
1889. *Callichrous bimaculatus*, Day, *Faun. Brit. Ind., Fish.* I, p. 131, fig. 57.
1927. *Callichrous bimaculatus*, Rao & Seshachar, *Half-yearly Journ. Mysore Univ.*, I, No. 2, p. 5.
1930. *Callichrous bimaculatus*, Prashad & Mukerji, *Journ. Bombay Nat. Hist. Soc.*, XXXIV, p. 165.

The entire body is dusky with the exception of the belly which is white. A round blackish blotch is present behind each opercle. The maxillary barbels are blackish, but the mandibulars are white.

One specimen ... 98 mm. long.
Local name ... *Sottah barai.*

Aoria punctatus (Jerdon).

1849. *Bagrus punctatus*, Jerdon, *Madras Journ. Lit. & Sci.*, XV, p. 339.
1877. *Macrones punctatus*, Day, *Fish. India*, p. 445, pl. c, fig. 3.
1889. *Macrones punctatus*, Day, *Faun. Brit. Ind., Fish.* I, p. 153.
1927. *Macrones punctatus*, Rao & Seshachar, *Half-yearly Journ. Mysore Univ.*, I, No. 2, p. 8.

The width of the head is equal to the length from the middle of the distance between the anterior border of the eyes and the nostrils to the posterior margin

of the operculum. Its height is less than half its total length. The diameter of the eyes is contained 7 times in the length of the head, almost 2½ times in the length of the snout and the interorbital space. The pectoral spines are as long as the head behind the middle of the eyes. The external mandibular barbels extend beyond the base of the pectorals.

The fish has the characteristic colouration as described by Day.

One specimen ... 200 mm. long.
Local name ... *Kori tee*.

Barbus arulius (Jerdon).

1849. *Systomus arulius*, Jerdon, *Madras Journ. Lit. & Sci.*, XV, p. 317.
1877. *Barbus arulius*, Day, *Fish. India*, p. 575, pl. xiii, fig. 5.
1889. *Barbus arulius*, Day, *Faun. Brit. Ind., Fish.* I, p. 322.
1909. *Barbus arulius*, Annandale, *Rec. Ind. Mus.*, III, p. 289.

Besides the two specimens of the species from the Bhavani River I have also examined the following specimens preserved in the collection of the Zoological Survey of India and the measurements and description given below are based on a study of all the specimens:—

2732 (Figured by Day) ...	Wynaad ...	Purchased from Day	...86mm
F5531/1	The Nilgiris ...	,, ,, ,,	...?8mm.
F2555/1	Tenmalay, Travancore.	Annandale Coll.	...37mm.
F2556/1, F8069/1 ...	Kalatupuzhal ,,	,, ,,	...34mm.

The length of the head is contained from 3½ to 3⅔ times in the length of the body without the caudal fin. Its breadth is equal to its length behind the anterior third or the middle of the eyes. The height is almost equal to the length behind the anterior nostrils. The diameter of the eyes is contained 3¼ times in the length of the head. The snout is as long as the eyes while the interorbital region which is flat, is slightly less than one diameter in width.

A pair of very thin and short maxillary barbels[1] are present. They are shorter than the diameter of the eyes. In all the young specimens, however, the barbels are proportionately longer. The dorsal fin is inserted nearer to the tip of the snout than to the base of the caudal. Its outer margin is more or less straight. The last undivided dorsal ray is osseous but fairly weak. The pectorals are equal to the length of the head behind the anterior margin of the orbit and are separated from the base of the ventrals by a short distance; but in young forms they very nearly reach the ventrals. The ventrals are situated just below the last undivided dorsal ray and are slightly longer than the pectorals. They extend only to the anal opening. In some fairly grown-up specimens as well as in the immature ones, however, they very nearly reach the anal; which latter when laid flat does not meet the base of the caudal. The caudal is longer than the head and its own height.

There are 23–24 scales along the lateral line and 7 rows in a transverse series; 4½ rows being between the dorsal fin and the lateral line and 2½ rows between the lateral line and the base of the ventral fins. There are 8 predorsal scales. The bases of the dorsal, anal and caudal fins are scaly. A prominent, fairly deep pectoral pit is characteristic of the species.

The general body colouration is olivaceous green. The portion above the lateral line is blackish. There are three black blotches on the sides of the body.

Two specimens ... 66 mm. long.
Local name ... *Pewal kendi*

[1] Day's specimen from the Nilgiris has two pairs of barbels. The maxillaries are very long. They extend up to the posterior margin of the opercles and are about 2½ times the diameter of the eyes. The rostrals are much shorter and reach beyond the middle of the eyes. The specimen bears a close resemblance to *B. arulius* but owing to its bad state of preservation does not allow of any detailed examination.

Measurements in millimetres.

	No. 2732	Bhavani R.	F $\frac{8069}{1}$
Length of body without caudal ...	86·0	66·0	37·0
Height of body	31·0	26·0	12·5
Length of head	24·0	20·0	11·0
Breadth of head	14·5	11·0	7·0
Height of head	20·0	16·0	9·0
Length of snout	7·25	6·0	3·0
Diameter of eyes	7·5	6·0	4·0
Interorbital width	7·0	6·0	3·5
Height of dorsal fin	16·5	16·0	11·0
Height of last undivided dorsal ray...	12·5	12.0	8·0
Length of anal fin	15·0	14 0	6·0
Length of pectoral fins	18·0	14·5	8·25
Length of ventral fins	19·5	15·0	9·0
Length of caudal fin	...	22·5	12·5
Length of caudal peduncle ...	12·0	11·0	5·5
Least height of caudal peduncle ...	11·0	10·0	5·0

Barbus carnaticus (Jerdon).

1849. *Systomus Carnaticus*. Jerdon, *Madras Journ. Lit. & Sci.*, XV p. 315.
1878. *Barbus Carnaticus*, Day, *Fish. India*, p. 563, pl. cxxxvii, fig. 3.
1889. *Barbus Carnaticus*, Day, *Faun. Brit. Ind., Fish.*, I, p. 305.

The following specimens of the species are preserved in the collection of the Zoological Survey of India and have been examined :—

2312	...	Canara	...	Purchased from Day	...	62 mm.
2379	...	Bowanny	...	,, ,, ,,	...	240 mm.
2410	...	Bowanny	...	,, ,, ,,	...	35 mm.

D. 4/7 ; A. 3/5 ; P. 1/14 ; V. 1/8.

The length and the height of the head varies from $4\frac{1}{4}$ to $4\frac{3}{4}$ and 3 to $3\frac{3}{3}$ times respectively in the length of the body without the caudal, while its breadth is equal to its length behind the anterior margin, or anterior third or the middle of the eyes. The height of the body varies with age and is equal to the length of the head behind the anterior nostrils in fairly grown-up specimens while in young forms it is much less and equals the length of the head behind the anterior margin of the eyes. The diameter of the eyes is contained from 3 to $3\frac{1}{2}$ times in the length of the head. The snout is as long as the diameter of the eyes or slightly shorter. The interorbital space is flat and is from 1 to $1\frac{1}{2}$ times the orbital width. The lips are moderately fleshy. The upper jaw is slightly longer than the lower and considerably protrusible. The

maxillary barbels are thin and as long as the diameter of the eyes, while the rostrals are considerably shorter. In grown-up specimens there are series of flat tubercles on the snout.

The insertion of the dorsal fin is considerably nearer to the tip of the snout than to the base of the caudal. The last undivided dorsal ray is strong and slightly curved inwards. In grown-up specimens it is as high as the body below it up to the insertion of the lateral line but in younger forms it is equal to or $\frac{4}{5}$ the body height. The outer margin of the dorsal fin is slightly concave. The pectorals are as long as the head, but are much smaller in young individuals. They are separated from the base of the ventrals by a short distance. The origin of the ventrals is almost vertically below the insertion of the dorsal. They are slightly shorter than the pectorals and separated from the base of the anal. The insertion of the anal is almost equidistant from the base of the caudal and the origin of the ventrals. It is as long as the ventrals and, in some specimens, when laid flat, reaches the base of the caudal. The caudal fin is longer than the head and almost as high as long.

The scales are moderately large and there are 28–29 scales along the lateral line and 9 rows in a transverse series, $5\frac{1}{2}$ rows being between the base of the dorsal fin and the lateral line and $3\frac{1}{2}$ rows between the lateral line and the base of the ventrals. In specimen No. 2312 from Canara, however, there are only 8 rows of scales in a transverse series ($4\frac{1}{2} + 3\frac{1}{2}$). The number of predorsal scales varies from 10 to 12. The dorsal, anal and caudal fins have scaly sheaths at the bases.

The colouration of the body is dark olivaceous green above the lateral line and lighter below. The outer margins of the scales are tipped with blackish pigments. There are 4 to 5 very fine and faint blackish longitudinal stripes along the body above the lateral line. The outer margin of the dorsal fin is blackish. All the fins are dusky. The rostral barbels are black.

One specimen... 120 mm. long.
Local name ... *Shole kendi.*

This species is popularly known as Carnatic carp. It is, however, ' doubtful how far this designation has any scientific basis, for, certain other species so called have no more than a distant resemblance to *Barbus carnaticus* (Jerdon).' [1]

Measurements in millimetres.

	No. 2379	Bhavani R.	No. 2312
Length of body without caudal fin ...	240·0	120 0	62·0
Height of body	78·0	35·0	17·0
Length of head	51·0	27·5	16·0
Breadth of head	36·0	18·0	8·5
Height of head	44·0	21·5	12·0
Length of snout...	16·5	7·5	4·5
Diameter of eyes	15·25	9·0	5·5
Interorbital width	23·0	11·0	4·5
Height of dorsal fin	49·0	26·5	15·5
Height of last undivided dorsal ray ...	42·0	26·5	15·5
Length of anal fin	53·0	20·0	10·0

[1] Annandale, N.—*Rec. Ind. Mus.* XVI, p. 135 (1919).

	No. 2379	Bhavani R.	No. 2312
Length of pectoral fins	52·5	24·0	12·0
Length of ventral fins	51·0	21·0	11·0
Length of caudal fin	59·5	33·5	...
Length of caudal peduncle ...	31·5	16·5	8·0
Least height of caudal peduncle ...	30·0	14·0	7·0

Barbus micropogon, var. mysorensis Jerdon.

1849. *Barbus mysorensis*, Jerdon, *Madras Journ. Lit. & Sci.*, XV, p. 312.

Jerdon originally described the form from ' Cavery and its tributaries ' in South India. His description is, however, very short and the only chief differentiating character that he mentioned is that the 'snout is prominent, raised, covered with mucous pores '. Day merged Jerdon's form in the synonymy of *B. micropogon* (Cuv. et Val.) and did not give it any status beyond saying that ' The variety *B. mysorensis*, Jerdon, has numerous large pores on the snout and preorbital.'[1] Besides the specimen from the Bhavani River, which I assign to Jerdon's form there is another similar but much bigger specimen (No. 2411) from ' Bowanny' (apparently Bhavani or Bhawani) in the collection of the Zoological Survey of India. This specimen bears a tag with the legend ' *Barbus micropogon* (var.) ' in Day's handwriting. I have very thoroughly examined the two specimens mentioned above and compared them with Day's *forma typica* of *B. micropogon* (No. 2398 : figured by Day in his *Fishes of India*, pl. cxxxvi, fig. 3), from ' Wynaad ' and have arrived at the definite conclusion that both the specimens from the Bhavani River, although closely allied to *B. micropogon*, are sufficiently distinct from it in the general outline of the body, the shape and size of the snout, etc. (Text-figs. 1 & 2) and should, therefore, be considered as a distinct form.

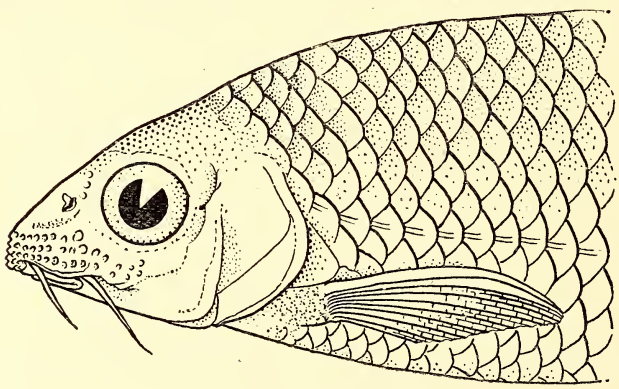

Fig. 1.—Lateral view of anterior portion of Day's specimen of *Barbus micropogon* var. *mysorensis*. (Nat. size).

D. 4/9 ; A. 3/5 ; P. 1/14 ; V. 1/9.

The head is short and cone-shaped. Its length is contained 4¼ times in the length of the body without the caudal. The breadth is equal to its length

[1] Day, F. *Fishes of India*, p. 563 (1878).

behind the anterior third of the eyes. The height equals its length excluding the snout. The eyes are situated in the middle of the head ; they are fairly large and are contained $3\frac{1}{2}$ times in the length of the head. The interorbital region is more or less flat and is wider than the diameter of the eyes. The snout is obtusely pointed, longer than the orbital width and covered with series of horny cone-shaped and pointed tubercles which extend as far back as the anterior margin of the eyes. There are some similar tubercles on the preorbital region also. The mouth is horse-shoe shaped and its gape is moderate. The lips are fleshy. The maxillary barbels are longer than the diameter of the eyes while the rostrals are about $\frac{3}{4}$ the length of the maxillaries.

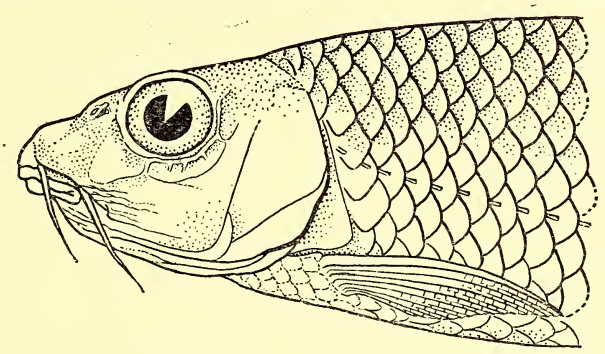

Fig. 2.—Lateral view of anterior portion of Day's specimen of *Barbus micropogon*. (Nat. size).

The dorsal fin is situated nearer to the tip of the snout than to the base of the caudal. Its outer margin is concave. The last undivided dorsal ray is smooth, very strong, flat and is almost as long as or slightly longer than the depth of the body below it. The base of the dorsal is equal to the length of the head behind the anterior margin or anterior third of the orbit. The pectorals are considerably shorter than the head and are separated from the origin of the ventrals by a short distance. The ventrals are inserted vertically below or slightly posterior to the insertion of the dorsal and are almost equal to or a little shorter than the pectorals. They are separated from the origin of the anal by a distance equalling half its own length. The anal is inserted midway between the origin of the ventrals and the base of the caudal. It is rather short with a more or less rounded outer margin, and, when laid flat, extends only to the middle of the caudal peduncle. The caudal fin is deeply furcate with equal pointed lobes. It is nearly $1\frac{1}{2}$ times longer than high. The scales are regularly arranged. There are 41–42 scales along the lateral line, 11 rows ($7\frac{1}{2}+3\frac{1}{2}$) in a transverse series and 15 before the dorsal fin.

The general colouration of the body is olivaceous green with the dorsum comparatively dark. The outer margin of the dorsal and the anal fins are faintly tipped with black.

One specimen ... 135 mm. long.
Local name ... *Korhi arrauz*.

The following table shows some of the chief characters that differentiate Jerdon's form from *B. micropogon* (*sensu stricto*):—

B.. micropogon var. **mysorensis.**	**B. micropogon.**
1. Head $4\frac{1}{4}$ times in length of body.	1. Head less than 4 times in length of body.
2. Snout pointed and covered with pointed tubercles.	2. Snout blunt and without tubercles.
3. Anal fin when laid flat extends to the middle of caudal peduncle.	3. Anal fin when laid flat extends to the base of caudal fin.
4. 41–42 scales along lateral line.	4. 38–39 scales along lateral line.
5. 14–15 predorsal scales.	5. 12 predorsal scales.

Rao and Seshachar (*op. cit.*, p. 16) reported a form under the denomination *B. micropogon* from Mysore and observed that 'Mysore is known for its very large specimens of this fish. Especially the Cauvery supplies us a very large number of these fish.' Since 'Cavery' is the type-locality of Jerdon's form, it seems probable that the authors had the variety *mysorensis* before them.

Measurements in millimetres.

	B. micropogon var. *mysorensis*.		*B. micropogon*.
	No. 2411.	Bhavani R.	No. 2398.
Length of body without caudal fin ...	170·	135·0	152·0
Height of the body	48·0	39·0	43·0
Length of head	38·0	34 0	40·0
Breadth of head	22·0	22·0	23·0
Height of head	28·5	25·0	28·0
Length of snout	15·0	12·0	14·0
Diameter of eyes	12·0	11·0	11·5
Interorbital width	13·5	11·0	11·5
Height of dorsal fin	43·0	42 0	42·0
Height of last undivided dorsal ray ...	42·5	41·5	42·5
Length of anal fin	29·0	22·5	28·5
Length of pectoral fins	32·5	29·0	30·0
Length of ventral fins	31·	27·0	27·0
Length of caudal fin	35·0	...	40·0
Length of caudal peduncle ...	28·5	23·5	21·0
Least height of caudal peduncle ...	18·0	15 0	16 0

Danio (Danio) æquipinnatus (McClell.).

1839. *Perilampus æquipinnatus*, McClelland, *Asiat. Research*, XIX (2), p. 383, pl. lx, fig. 1.
1878. *Danio æquipinnatus*, Day, *Fish. India*, p. 596, pl. cl. fig. 5.
1889. *Danio æquipinnatus*, Day, *Faun. Brit. Ind., Fish*, I, p. 356, fig. 111.
1929. *Danio æquipinnatus*, Prashad & Mukerji, *Rec. Ind. Mus.*, XXXI, p. 20.

Myers[1] observes that in this species the insertion of the anal is 'under about the ninth dorsal ray'. I have examined a large series of specimens of this species from various localities in India, Burma, Siam, etc., and find that the anal is situated vertically below the sixth or the seventh dorsal ray. Further, according to him the rostral barbels are 'as long as eye'. But in all the specimens that I have examined they are generally half to three-fourths the orbital width.

One specimen ... 61 mm. long.
Local name ... *Orichik condee*.

[1] Myers, G. S.—*Amer. Mus. Novitates*, No. 150, p. 3 (1924).

Barilius gatensis (Cuv. et Val.).

1844. *Leuciscus gatensis*, Cuvier & Valenciennes, *Hist. Nat. Poisson*, XVII, p. 309, pl. 503.
1878. *Barilius gatensis*, Day, *Fish. India*, p. 592, pl. cxlix, fig. 2.
1889. *Barilius gatensis*, Day, *Faun. Brit. Ind., Fish.*, I, p. 349.
1924. *Barilius gatensis*, Fowler, *Acad. Nat. Sci. Phild.*, lxxvi, p. 78.

I have examined Day's two specimens of the species (Cat. 871) from the Nilgiris and I find that in both of these as well as in the individual from the Bhavani River, there are present very thin and short maxillary barbels. The specimens are provided with a series of small pointed tubercles on the snout, some portion of the cheek and the lower jaw. The pectoral fins are as long as the head behind the anterior third of the eyes and almost reach the ventrals, which latter extend only to the vent. The length of the anal fin is as long as the length of the head behind the middle of the eyes.

There are 12 vertical black bars descending from 3 scales below the dorsal line. Six or seven smaller and much narrower bars originate from a couple of scales below and alternate with the first series. They extend further down than those in the first row.

One specimen ... 73 mm. long.
Local name ... *Wa-nati kendi.*

Scaphiodon brevidorsalis (Day).

1873. *Semiplotus brevidorsalis*, Day, *Proc. Zool. Soc. London*, p. 239.
1877. *Scaphiodon brevidorsalis*, Day, *Fish. India*, p. 552, pl. cxxxiii, fig. 2.
1889. *Scaphiodon brevidorsalis*, Day, *Faun. Brit Ind., Fish.*, I, p. 286, fig. 98.[1]
1927. *Scaphiodon brevidorsalis*, Rao & Seshachar, *Half-yearly Journ. Mysore Univ.*, I, No. 2, p. 15.

D. 3/11 ; A. 3/5 ; P. 1/13 ; V. 1/9.

The length of the head, of the caudal fin and the height of the body are contained $4\frac{1}{4}$, slightly less than 4 and a little over 3 times respectively in the length of the body without the caudal. The eyes are situated almost in the middle of the length of the head and are contained 3 times in the length of the latter. There are several rows of small tubercles across the snout.

The origin of the dorsal fin is nearer to the tip of the snout than to the base of the caudal. The last osseous ray is shorter than the longest branched ray and is nearly equal to the length of the head. The pectorals are slightly shorter than the length of the head and do not extend to the base of the ventrals which latter are as long as the former and do not quite reach the base of the anal.

The body above the lateral line is dusky while the portion below is yellowish to white. There is a blackish band along the lateral line from behind the angle of the opercles to the base of the caudal fin.

One specimen ... 76 mm. long.
Local name ... *Patty kendi.*

Scaphiodon nashii (Day).

1868. *Barbus Nashii*, Day *Proc. Zool. Soc. London*, p. 584.
1877. *Scaphiodon Nashii*, Day, *Fish. India*, p. 552, pl. cxxxiii, fig. 3.
1889. *Scaphiodon nashii*, Day. *Faun. Brit. Ind., Fish.*, I, p. 285.
1927. *Scaphiodon nashii*, Rao & Seshachar, *Half-yearly Journ. Mysore Univ.*, I, No. 2, p. 15.

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[1] The figure 98 in the *Fauna of British India, Fishes*, I, p. 286, has wrongly been referred to *Scaphiodon brevidorsalis* by Day. It is, in fact, a reduced replica of the figure of *Scaphiodon nashii* published in his *Fishes of India*, pl. cxxxiii, fig. 3.

D. 3/11 ; A. 3/5 ; P. 1/13 ; V. 1/9.

The length of the head, of the caudal fin and the height of the body are contained $4\frac{1}{2}$, $3\frac{1}{2}$ and $3\frac{1}{3}$ times respectively in the length of the body without the caudal fin. The head is slightly higher than broad. The eyes are situated almost in the middle of the length of the head. The interorbital space is more or less flat and equal to $1\frac{1}{4}$ the diameter of the eyes. The snout is slightly longer than the orbital width, and covered with series of tubercles.

The mouth is very characteristic (Text fig. 3). It is small and horse-shoe shaped with rather thick and continuous lips. The horny covering of the lower jaw is somewhat swollen but not very hard. Day[1] observes that the ' mouth in this species alters so with age, that until I had compared specimens of my *Osteochilus malabaricus*[2] with gradations of *Scaphiodon Nashii* since obtained I could not have believed in their being identical. In the young the jaws are compressed, each with a cartilaginous covering ; the lips are thick and continuous, not continued across the chin. As age increases the mouth widens, the cartilaginous covering becomes more horny, and the colour of the fish alters.' This description agrees very closely with the character of the mouth of the specimen from the Bhavani River.

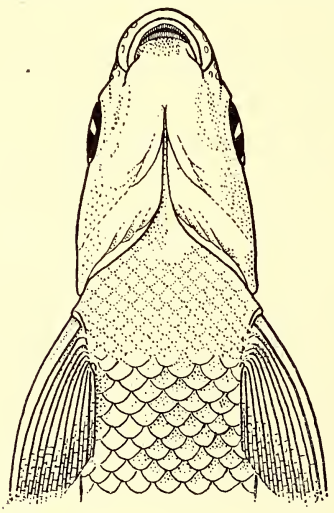

Fig. 3.—Ventral view of *Scaphiodon nashii* from Bhavani River. x $1\frac{1}{2}$.

The origin of the dorsal fin is much nearer to the tip of the snout than to the base of the caudal. The longest ray of the dorsal fin is nearly $1\frac{1}{3}$ times in the depth of the body below it. The last undivided dorsal ray is rather weak. The base of the dorsal fin is almost equal to its height. The outer margin is more or less straight. The pectorals are falciform, slightly smaller than the head and separated from the origin of the ventrals by a considerable distance. The ventrals are inserted vertically below the 4th branched ray of the dorsal, shorter than the pectorals and extend to the anal opening. The anal is twice as long as it is broad at the base and does not quite reach the caudal. The caudal is deeply furcate and is longer than it is high at its free end. The central rays which are the shortest are about $4\frac{1}{2}$ times in the entire length of the fin.

There are 40-41 scales along the lateral line, $12\frac{1}{2}$ rows in a transverse series, $7\frac{1}{2}$ rows being above the lateral line and 5 rows between the lateral line and the base of the ventrals. In front of the origin of the dorsal there are 18 scales. The colouration of the specimen agrees entirely with Day's description.

One specimen ... 115 mm. long.
Local name ... *Kari moti kandi.*

Remarks.—In general facies, character of the pharyngeal bone and teeth, etc., the specimen agrees perfectly with a *Scaphiodon*. The proportions of its body, the position and composition of the fins and the characteristic colouration highly suggest that it is *S. nashii*. It is only the shape of the mouth and the character of the lips that are unlike a *Scaphiodon*. Unfortunately, I have no authenticated material of this species at my disposal at present for comparison, and I have, therefore, greatly relied on Day's remarks in regard to the variability of the shape and size of the mouth and the lips in this species.

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[1] Day, F.—*Fishes of India*, p. 552, foot-note.

[2] In all probability this is a misnomer. Day does not seem to have called anything by this name.

Measurements in millimetres.

	Bhavani R.
Length of body without caudal fin	115·0
Height of body	35·0
Length of head	25·0
Breadth of head	16·0
Height of head	19·0
Length of snout	9·0
Diameter of eyes	8·0
Interorbital width	10·0
Height of dorsal fin	23·5
Height of last undivided dorsal ray	23·5
Length of anal fin	23·0
Length of pectoral fins	24·0
Length of ventral fins	23·5
Length of caudal fin	34·5
Length of caudal peduncle	17·0
Least height of caudal peduncle	14·0